

Cavernicolous Milichiidae (Diptera): three new species from Fiji and Sri Lanka

by

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With 11 figures

ABSTRACT

Phyllomyza aelleni sp. n. (Sri Lanka), *Leptometopa pacifica* sp. n. and *Leptometopa pecki* sp. n. (Fiji Is.) are described with taxonomical notes.

The Oriental species of the family Milichiidae are very little known and this fact influences considerably our knowledge also on the Pacific milichiids. It is a matter of course that Cosmopolitan widespread species occur also there (SABROSKY 1977) but the percentage of the species endemic for both areas must be considerably higher, i.e. a number of new species is to be described first of all from the Oriental region.

As it has been noted (PAPP 1982) several new species had been found in the cavernicolous materials of the Geneva Museum. Below three new species are described. We think that none of these species is true cavernicolous (troglóbite) (cf. HOWARTH 1980, PAPP 1982) but they prefer humid and comparatively cool places, explaining why they are found also in caves.

The holotypes of the three species and the majority of their paratypes are deposited in the Muséum d'Histoire naturelle Genève, some paratypes are in the Zoological Department of the Hungarian Natural History Museum, Budapest. All the type-materials are preserved in alcohol, genitalia of some paratype males are kept in microvials.

I am deeply indebted to Professor Dr. Villy Aellen, director of the Muséum d'Histoire naturelle Genève, for the repeated opportunity of study trips to Geneva and thus enabling me to work on their valuable materials.

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Phyllomyza aelleni sp. n.

Measurements in mm: body length 1.64 (holotype ♂), 1.65-2.25 (paratypes), wings 1.54×0.63 (holotype), 1.58×0.65 - 2.38×0.98 (paratype ♂, ♀), palps of holotype 0.17×0.042 .

Body originally dark brown but faded in alcohol, so in fact lighter reddish brown (only one paratype female kept its colour), wings transparent, shining, veins yellow to light ochreous.

Head bristles similar to those of the other *Phyllomyza* species: comparatively short but thick (e.g. ocellar of paratype ♀: 0.20 mm), pvt, oc, vti, vte, 3 exclinate ors, 2 inclinate ori pairs present. Ocellars much divergent, postverticals strong and cruciate. Inter-

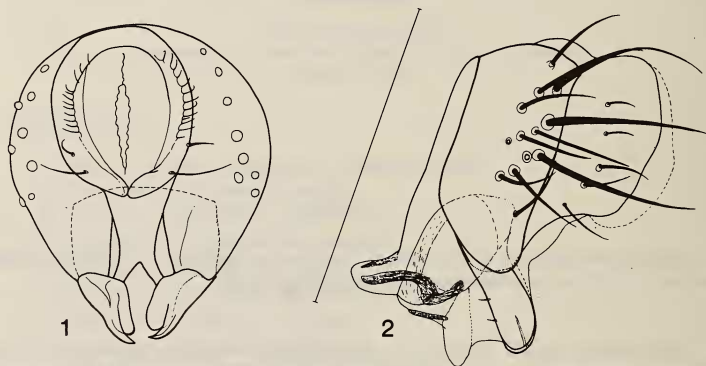


FIG. 1, 2.

Phyllomyza aelleni sp. n., paratype male, 1: perianthrium, cerci and surstyli in caudal view (macrosetae omitted); 2: same in lateral view (scale 0.20 mm).

frontals short and thin, lunule setose. Vibrissae thick but short. Second antennal joint with a robust, exclinate dorsal bristle, male third joint comparatively short (length on holotype 0.11 mm, width 0.083 mm), \pm conical, apex widely rounded. Arista normal, 0.42 mm on holotype, 0.58 mm on a paratype female. Aristal cilia sparse, and only 0.02 mm. Height of eye 0.38 mm on holotype, 0.53 mm on a paratype female, width of gena below eyes 0.08 mm and 0.10 mm, respectively. Thoracic chaetotaxy: 1 h, 1 posth, 2 np, 1 sa, 2 pa, 0 + 2 dc, 2 sc, 1-2 minute propl (supracoxal), 1 st pairs. One weak (0.05 mm) prsc, females without it. Sternopleuron with some short bristles. Acrostichal microchaetae unarranged in c. 5 (♂) or 8 (♀) rows between dc lines. Apical scutellars divergent or at most parallel. Legs short and thick, coxae, femora and tibiae dark brown, tarsi ochreous. No dorsal preapicals on tibiae, but middle tibial spur strong (0.14 mm on holotype, 0.20 mm on a paratype ♀). Terminal section of medial vein 0.65 mm (holotype ♂), 1.01 mm (paratype ♀), intracrossvein section 0.20 mm, 0.26 mm, posterior

crossvein 0.12 mm and 0.20 mm, respectively. Halteres yellow with comparatively large knob. Marginal bristles of abdominal terga normal, i.e. not specially long. Male genitalia very small, characterized by their large cerci (Fig. 1), perandrium short (Fig. 2), bearing very long and thick bristles, surstyli somewhat asymmetrical, narrow in profile, apex rounded with an incision, in ventral view (Fig. 1) with two apex, cerci with some short hairs. Female cerci-terminate in a short straight thorn (0.15×0.10 mm).

Holotype male: Ceylan [Sri Lanka]: Hanguranketa, grotte d'Istripura, 19.I.1970, Strinati et Aellen. Paratypes: 1 ♂, 2 ♀: data same as for the holotype; for details on collecting site see STRINATI & AELLEN 1981. The types are preserved in alcohol in a good state of preservation though faded.

The holotype and the two female paratypes are deposited in the collection of the Muséum d'Histoire naturelle Genève, the male paratype (dissected for genitalia preparation, genitalia in microvial) is in the collection of the Zoological Department, HHNM (Budapest).

I dedicate this new species to Prof. Dr. Villy Aellen.

Remark. Phylomyza aelleni sp. n. is an easily identifiable species among the Oriental *Phylomyza* species. Its short male third antennal joint and palpi are dark brown, i.e. the new species keys to the couplet 3 in MALLOCH's (1914) key but contrarily to those species (*Ph. nudipalpis* Malloch, 1914 and *Ph. dilatata* Malloch, 1914) the male palpi are small and simple. There are two cavernicolous species of *Phylomyza* in the Oriental Region (SABROSKY 1964, 1977), namely *Ph. cavernae* de Meijere, 1914 (Java, Malaya) and *Ph. tenebrosa* Brunetti, 1924 (India, Assam); both species have black halteres. *Ph. aelleni* sp. n. has yellow halteres; contrarily to *tenebrosa*, its third antennal joints are dark brown and not partly reddish yellow, its genae are narrower than in *tenebrosa* ($1/5$ vs $1/3$ - $1/4$ the height of eye). The genitalia of the new species are also distinctive.

Leptometopa pacifica sp. n.

Measurements in mm: body length 1.60 (holotype ♂), 1.60-1.90 (paratype ♂♂), 2.10-2.20 (paratype ♀♀), wings 1.68×0.68 (holotype), 1.66 - 1.86×0.68 - 0.78 (paratype ♂♂), 2.10 - 2.25×0.82 - 0.86 (paratype ♀♀).

Body and legs dark brown to black, wings light greyish, veins ochreous, palpi yellow to reddish, genae and facial plate greyish yellow.

Head chaetotaxy: pvt cruciate, oc, vti, vte moderately long, 2 pairs on inclinate ori, 2 pairs of exclineate ors, interfrontals small and well-ordered in 2 rows. Vibrissae 0.18-0.20 mm, a second pair of vibrissae (0.09-0.10 mm) below them. Distal section of labella 0.22 mm (holotype), 0.28 mm (paratype ♀). Antennae in deep foveae, lunule with a pair of short bristles, third antennal joint rounded. Genae below eyes 0.11 mm (holotype), 0.11 mm (paratype ♀), height of eyes 0.45 mm and 0.46 mm, respectively, i.e. eyes only four times as high as genal diameter. Jowls not very wide. Thoracic chaetotaxy: 1 h, 2 np, 0 posth (or prst), 1 sa, 2 pa (posterior one in intraalar position), 0 + 2 dc (anterior one short, c. 0.10-0.15 mm, posterior long, their distance only 0.06-0.08 mm (!)), no prsc, 2 sc, 1 long st, 1 strong pteropleural and 2 additional short pteropleurals. Apical scutellars cruciate. Acrostichal microchaetae numerous and unarranged. Legs uniformly dark brown to black, no lighter rings, etc. Middle coxae with very long (0.14 mm), ventrally directed and slightly curved bristles. Middle tibial ventral spur to 0.12 mm. Male hind tibia much swollen (0.14 mm at widest), hind femora even much swollen (0.18 mm thick in lateral view), also female hind tibia dilated ($0.46 \times$

0.10 mm, paratype ♀). Costa of wing very thick (0.04 mm on ♀, 0.038 on holotype), basally with a long (0.14 mm) bristle. Costa reaches only a little over merger with r_{4+5} (cf. HENNIG 1937, PAPP 1978). Medial vein slightly upcurving (nearly so as in *latipes* Meig.). Terminal section of medial vein 0.94 mm (holotype), 1.07 mm (paratype ♂), 1.21-1.28 mm (paratype ♀♀), intracrossvein section 0.23 mm (holotype), 0.22 mm (paratype ♂), 0.23-0.29 mm (paratype ♀♀), posterior crossvein 0.10 mm (holotype), 0.10 mm (paratype ♂), 0.11-0.15 mm (paratype ♀♀), i.e. in this respect a slight sexual dimorphism is probable. Halteres dark with large knob. Bristles of abdominal segments only mod-

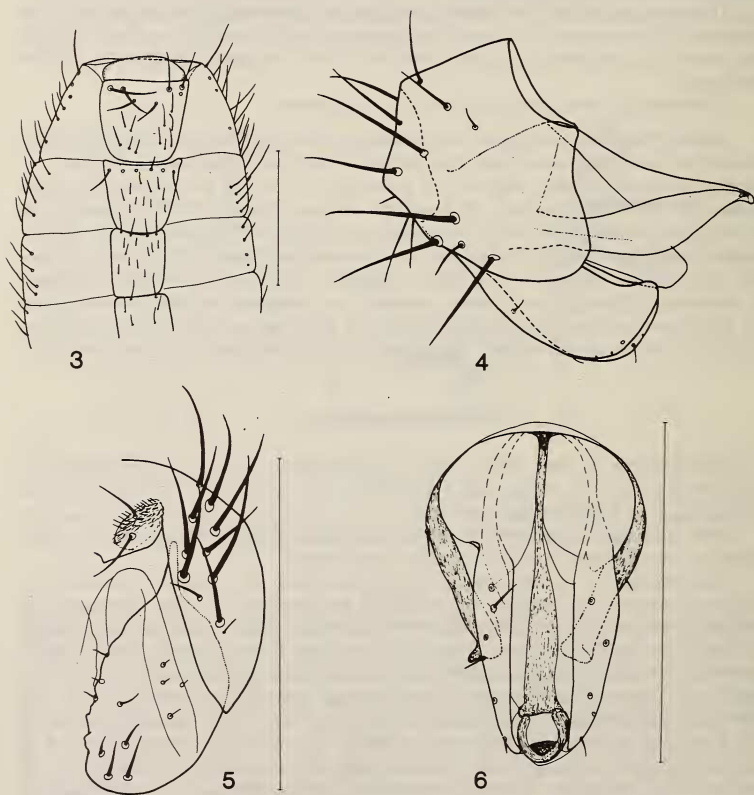


FIG. 3-6.

Leptometopa pacifica sp. n., paratype male, 1: preabdomen in ventral view; 4: periandrium and surstylus in lateral view; 5: right surstylus in its widest extension with cercus; 6: hypandrial complex in ventral view (scales: 0.3 mm for Fig. 3, 0.20 mm for Fig. 4, 5, 0.18 mm for Fig. 6).

erately long and merely pregenital segment with longer bristles. Male abdominal sterna not wide, fourth segment short, fifth segment not much elongated (Fig. 3). Periandrium (Fig. 4) rather long, cerci comparatively small (Fig. 5), surstyli large but not similar to those of *L. aelleni* (Figs. 4, 5). Periandrium with long bristles but surstyli bear only short and sparse bristles. Hypandrial complex (Fig. 6) with comparatively short dorsal arms, wider and otherwise shaped than in *pecki* sp. n.; its ventral part has some short bristles. Female cerci very thin and long, rod-like, with at most 0.04 mm long bristles (hairlike bristles).

Holotype male (right foreleg, antennae missing): Fiji: Viti Levu, Waitulua Cave, 26.VIII.1978, leg. S. Peck. Paratypes: 15 ♂, 3 ♀: data some as for the holotype.

Unfortunately there is no intact specimen in the type series: all the specimens with broken legs or wings, parts of legs and wings missing, cephalic and thoracic bristles broken, etc. The type-series is preserved in alcohol and not mountable. The holotype male, 11 male and the 3 female paratypes are deposited in the collection of the Muséum d'Histoire naturelle Genève, four male paratypes (one of them without head and legs) are in the Zoological Department of the Hungarian Natural History Museum, Budapest.

Remarks: *Leptometopa pacifica* sp. n. belongs to the species-group of *L. latipes* (Meig.). Its closest known relative is *L. aelleni* L. Papp, 1978 (genae wide, legs uniformly dark, male hind tibiae swollen, male periandrium rather long). It differs from *aelleni* by its more swollen hind tibiae and femora and by the details of male genitalia (its cerci are somewhat smaller, surstyli otherwise shaped (Figs. 4, 5, cf. Figs. 2, 3 of PAPP 1978), the bristles on surstyli are shorter, the male 5th sternum is not emarginate medially as in *aelleni*).

Leptometopa pecki sp. n.

Measurements in mm: body length 1.60 (holotype ♂), 1.40-1.60 (paratype ♂♂), 1.60-2.12 (paratype ♀♀), wings $1.60 \times c. 0.60$ (holotype), $c. 0.54-c. 0.62 \times 1.44-c. 1.54$ (paratype ♂♂), $1.64-1.86 \times 0.67-0.75$ (paratype ♀♀) (not always precisely measurable owing to the wrinkled wings).

Body and legs dark brown, apices of middle and hind tibiae (sometimes also of fore tibiae) and tarsi reddish yellow, frons reddish in its anterior 1/3, genae and face reddish yellow, wings light greyish, veins light yellow to colourless.

Head chaetotaxy: pvt parallel to each other or slightly divergent (!), oc, vti, vte rather long and thick, 2 inclinate ori and 2 exclineate ors pairs, anterior ors also somewhat proclinate, 2 well-ordered rows of comparatively long (0.06 mm) interfrontals, supra-anular 0.10 mm long, orbits also with some shorter inclinate bristles. Vibrissae strong, an upcurving peristomial below it (which can be regarded as a second vibrissa), peristomials proclinate and slightly upcurving. Width of gena below eye 0.038 mm (holotype), 0.04 mm (two paratype ♀♀), height of eyes 0.40 mm (holotype), 0.42 mm and 0.38 mm (paratype ♀♀), respectively. Gena posteriorly with a straight, long (0.13-0.14 mm) ventrally directed bristle. Antennae in deep foveae, third antennal joint rounded, spherical, arista c. 0.15 mm (holotype), 0.36-0.40 mm (paratype females), its cilia not longer than 0.015 mm. Apical section of labella 0.20-0.22 mm. Palpi somewhat swollen with only short (0.03-0.04 mm) bristles, apex of palpi dark, basal parts lighter (greyish yellow to reddish yellow). Thoracic chaetotaxy: 1 h, 2 np, 1 comparatively strong prst (posth), 1 sa (weaker in males), 2 pa (posterior one in intraalar position), only 1 dc (an additional small bristle just cranial to it which can hardly be named as a characteristic bristle),

1 prsc, 2 sc, 2 st (also anterior one strong, posterior one extremely long) up to 0.18 mm) bristle pairs, mesopleuron and sternopleuron with short bristles, *no* pteropleural bristles, supracoxal bristles (1 pair) minute. Apical scutellars divergent or parallel to each other. Acrostichal microchaetae numerous and disordered. Prosternum very wide (to 0.14-0.15 mm), wide V-shaped or heart-shaped. Middle coxal bristles moderately long (max. 0.12 mm), middle tibial spur also moderately long, 0.08 mm. Hind tibia of holotype: 0.48×0.08 mm, i.e. male hind tibia not swollen. Costal vein with strong black fringe

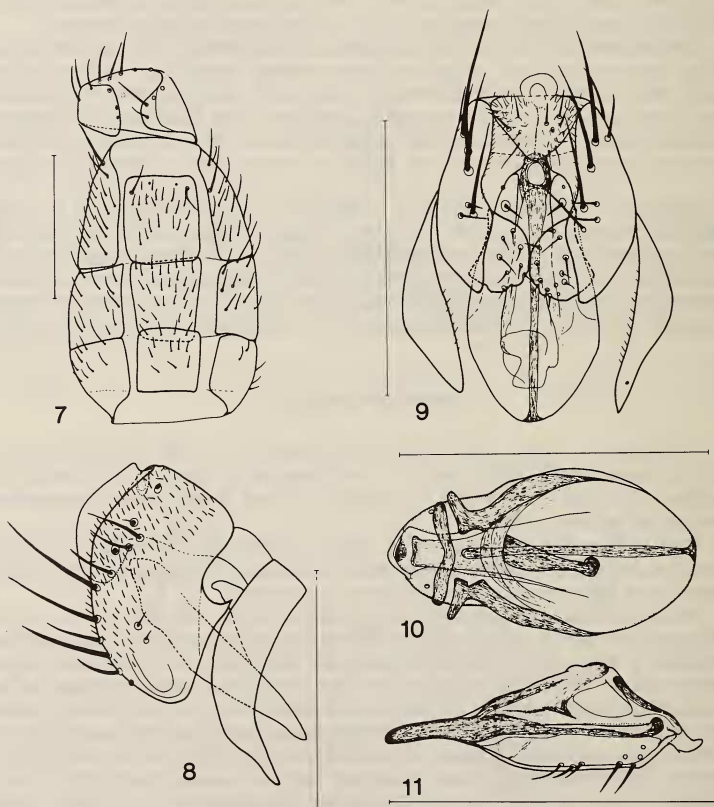


FIG. 7-11.

Leptometopa pecki sp. n., paratype male, 7: preabdomen in ventral view; 8: perianthrium and cercus laterally; 9: genitalia with tergum 6 in ventral view; 10: hypandrial complex in dorsal view; 11: same in lateral view (scales: 0.40 mm for Fig. 7, 0.18 mm for Fig. 8-10, 0.20 mm for Fig. 11).

only to merger with r_{2+3} but costa continued thinly to merger with medial vein. Costa 0.02-0.03 mm at widest, i.e. thinner than in *pacifica* sp. n. Medial vein upcurving in its apical half, consequently fourth costal section shorter than third. Terminal section of medial vein 0.70 mm (holotype), 0.74 mm (paratype ♀), intracrossvein section 0.24 mm, 0.27 mm, posterior crossvein 0.07 mm and 0.15 mm, respectively (a slight sexual dimorphism). Male 4th abdominal segment very long (Fig. 7), sterna comparatively wider than in *pacifica* sp. n., tergum 5 with moderately long marginal bristles. Periandrium small but comparatively not short, caudally rounded (Fig. 8), surstyli hidden in lateral view (Fig. 8), periandrium with a wreath of long thick bristles. Cerci comparatively small without long bristles, surstyli (Fig. 9) very short, rounded with several short bristles. Hypandrial complex (Fig. 10) narrower in dorsal view than that of *pacifica*, its dorsal arms almost digitiform, caudal apex more rounded. Hypandrial complex ventrally with several short bristles (Fig. 11), in lateral view rather thin caudally. Female tergal marginal bristles short (0.10-0.12 mm) other tergal bristles even shorter. Female sterna much narrower than their length, cerci with an apical bristle of 0.10 mm and several shorter hairs (hairlike bristles) on them.

Holotype male (some head bristles and left wing broken, right arista missing, also a part of scutellum and all scutellars lost): Fiji: Viti Levu, Wailotua Cave, 26.VIII.1978, leg. S. Peck. Paratypes: 4 ♂, 15 ♀: data same as for the holotype. The type-series is in a rather bad state of preservation (similarly to that of *pacifica*): the specimens are broken, legs, wings are missing or partly lost; the description was only possible since there are numerous specimens available. The types are preserved in alcohol and because of their state it would not be advisable to pin them.

The holotype male, two male paratypes and 13 female paratypes are deposited in the collection of the Muséum d'Histoire naturelle Genève, two male and two female paratypes are in the Zoological Department of the Hungarian Natural History Museum, Budapest (one male was dissected for genitalia preparation).

I dedicate this new species to S. Peck, the collector of the above two new species.

Remark. *Leptometopa pecki* sp. n. is a species of the *L. niveipennis* species-group (no pteropleurals, mesopleuron setose, 1 pair of strong prescutellars, etc.) but its fore coxae are black, base of arista thickened, medial vein upcurving, genae extremely narrow (their width below eyes only 1/10 of height of eyes).

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